CITY OF FORT SMITH
Invitation to Bid
Purchasing Department
623 Garrison Avenue #512
P.O. Box 1908
Fort Smith, AR 72902-1908
The City of Fort Smith is an EOE M/F

BID NO: 4401-300-BA	**Roof Replacement of I.T. Building ("Old Library") 801 Carnall Avenue Fort Smith, Arkansas**	**Closing Date: Tuesday, November 14, 2017 @ 2:00 PM**

ALL BIDS SUBMITTED SHAL HAVE AN ORIGINAL SIGNATURE. SEALED BIDS MAY BE RETURNED TO THE ABOVE ADDRESS

Company	Name: **(Print or Type)**
Federal Tax I.D. No.	Signature*
Mailing Address	Title
City	Date
State ***Zip Code***	**Authorized Signature:* *The signer declares under penalty of perjury that she/he is authorized to sign this document and bind the company or organization to the terms of this agreement.*
Tel. No. ***Fax No.***	
E-Mail	

For Further Information Concerning This Bid, Please Contact:
ALIE BAHSOON, Purchasing Manager
Phone: (479) 784-2267 Fax: (479) 784-2484 Email: abahsoon@FortSmithAR.gov

The City of Fort Smith ("City"), Arkansas, will receive sealed bids from qualified vendors ("Contractor") for the **Replacement of Roof at the City of Fort Smith Information Technology (I.T.) Building (or better known as the "Old Library"), located at 801 Carnall Avenue, Fort Smith, Arkansas** until 2:00 p.m. local time on **Tuesday, November 14, 2017** in the Purchasing Department at the Municipal Offices, 623 Garrison Avenue, Room 512, at which time the same will be publicly opened and read aloud.

This document, certifications, conditions, specifications and drawings hereunder listed, together with all addenda shall form part of the contract between the successful bidder, and the provisions thereof shall be as binding upon the parties thereto as if they were fully set forth therein.

Attention is called to the fact that the Contractor must ensure that employees and applicants for

employment are not discriminated against because of their race, color, religion, sex or national origin. The City of Fort Smith encourages participation of small, minority and woman owned business enterprises in the procurement of goods, services, professional services and construction either as a general contractor or sub-contractor. It is further requested that whenever possible, majority contractors who require sub-contractors seek qualified small, minority and woman businesses to partner with them.

A mandatory pre-bid meeting and walk-thru for bidders will be performed on Tuesday, November 7, 2017, beginning at 10:00 a.m. at 801 Carnall Avenue, Fort Smith, Arkansas. Each interested contractor present shall be deemed eligible for bidding by placing their name on a sign-in sheet that will be available by City Staff. No bids shall be accepted by anyone not present at the meeting and site inspection.

The City reserves the right to reject any or all bids or to waive any informalities in bidding. Bids may be held by the City for a period not to exceed sixty (60) days from the date of the opening of bids for the purpose of reviewing the bids and investigating the qualifications of bidders prior to awarding of the contract.

INFORMATION FOR BIDDERS

Time for Completion

Before bidding on this project, each Contractor shall fully informed of any and all utility relocation requirements on the site. The Contract requires the Contractor to commence work within ten (10) calendar days after receipt of the Notice to Proceed, and to complete that work within 45 consecutive calendar days. NOTE: The City may exercise its option of delay of issuing the "Notice to Proceed", not to exceed sixty (60) calendar days after the date of entering into the Contract. Calendar days are calculated to allow for adequate time to complete this project. Typically the contractor will be allowed to work between 7 a.m. and 6 p.m. Monday through Saturday unless approved otherwise by the City.

Laws and Regulations

The Contractor's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities have jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

Method of Award – Lowest Qualified, Responsive and Responsible Bidder

If deductive alternates are requested, they will be selected in the order of the listings. The contract will be awarded to a single qualified, responsive, responsible bidder submitting the lowest total price for the base bid, if the low total bid is reasonable and it is to the interest of the City to accept it. The City may disqualify a bidder if, upon checking references and records of their performance under other contracts, and upon checking the bidder's history of litigation, the City concludes that they are not qualified to execute the work according to specifications or are not a responsible contractor.

Obligation of Bidder

At the time of the opening of bids, each Contractor will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his bid.

Arkansas State Licensing Law

Attention of bidders is particularly called to the requirement that bidders must be in compliance with the requirement of Act 150 of 1965 of the State of Arkansas, effective June 3, 1965, (codified as amended at Ark. Code Ann. §§ 17-25-301 through 17-25-316) which is the current Arkansas State Licensing Law for Contractors.

Schedule of Work

All work shown on the attached drawings and listed in the specifications shall be completed within 45 calendar days after receipt of notice to proceed.

Subcontractors

The bidder is specifically advised that any person, firm or other party to whom it is proposed to award a subcontract of $35,000 or more under the agreement must possess a current Arkansas Contractors License, must be able to obtain bonding, and must be acceptable to the City.

Insurance and Bonding

Insurance: Contractor agrees to purchase, at its sole cost and expense, adequate Workers Compensation Insurance for its employees who perform work on this Project, and to require that its subcontractors purchase adequate Workers Compensation Insurance for the subcontractor's employees who perform work on this Project. Contractor agrees to purchase, at its sole cost and expense, insurance coverage required by the Contract Conditions and Specifications. Required insurance policies shall be provided by an insurance company that is authorized to do business in Arkansas. Contractor shall furnish certificates to the Owner prior to issuance of the Notice to Proceed. Such certificates shall provide that the Owner is to receive written notice of cancelled policies a minimum of thirty (30) days before the cancellation or expiration of the policy. Insurance certificates for all required insurance policies shall be submitted to the City of Fort Smith, Attention: Purchasing Manager, Room 512, 623 Garrison Avenue, Fort Smith, Arkansas 72902.

Performance and Payment Bond: Contractor shall obtain and provide a Performance and Payment Bond for the full amount of this Contract with a one-year General Warranty. Such Performance and Payment Bond must be submitted to the Owner upon execution of this Contract. Performance and Payment Bonds shall include provisions that will guarantee the faithful performance of the prevailing hourly wage clause as provided by in this Contract. Performance and Payment Bonds shall be issued to the City of Fort Smith.

Liquidated Damages for Delay in Completion

As actual damages for any delay in completion of the work which the Contractor will be required to perform under the Contract are impossible to determine, the Contractor and their Sureties will be liable for and shall pay to the City the sum of One Hundred Dollars ($100.00) as fixed and agreed as liquidated damages for each calendar day of delay from the date stipulated until such work is satisfactorily completed.

Indemnification

To the fullest extent permitted by law, the Contractor agrees to defend, indemnify, protect, and hold the City and its agents and employees harmless from and against any and all claims asserted or liability established for damages or injuries to any person or property, including injury to City's or Contractor's agents, or officers which arise from, or are connected with, or are caused, or claimed to be caused by acts, or omissions of the Contractor and its agents, officers, or employees in performing, providing,

manufacturing, or supplying the work, services, product, or equipment relating to this bid, and all expenses of investigating and defending against same; provided, however, that the Contractor's duty to indemnify and hold harmless shall not include any claims or liability arising from the established sole negligence or willful misconduct of the City, its agents, officers, or employees.

CERTIFICATE OF COMPLIANCE WITH ALL LAWS AND REGULATIONS REGARDING WORKERS WHO ARE NON-CITIZENS OF THE UNITED STATES

The undersigned Contractor, as part of its contract with the City of Fort Smith, for the provision of services or construction of public works, certifies, under oath, that it will comply with all laws and regulations concerning work performed by persons who are not citizens of the United States as to any and all services and work performed for the City of Fort Smith under said contract. In executing this certification, the undersigned Contractor is fully cognizant that, pursuant to City of Fort Smith **Resolution No. 121-08**, the Contractor shall be subject to an administrative penalty of up to five hundred dollars ($500.00) for any violation related to this certification.

Signature of Contractor or Authorized Agent:

_____

Print Name of Contractor or Authorized Agent:

_____

Date: _____

BID PROPOSAL FORM

We, the undersigned, agree to furnish the products and/or services indicated below in accordance with the specifications and conditions contained herein, at the bid price shown. It is expressly agreed and understood by and between the parties hereto, and is made a condition precedent to the entering into of any purchase agreement resulting from this Invitation to Bid, that the Purchasing Manager of the City of Fort Smith shall determine any and all questions or disputes which may arise concerning conformity to the specifications and conditions, and proposals; and the quantity, suitability, and acceptability of all items to be furnished hereunder; and his decision as to such matters shall be final, binding, and conclusive upon the parties hereto.

That this Invitation to Bid and proposals submitted hereunder shall be governed by the laws of the State of Arkansas.

We, the undersigned, affirm that this proposal is made on behalf of the undersigned, and is made without collusion on the part of any person, firm or corporation; and that the conditions and other provisions have been carefully examined and are agreed to.

Cost of roof replacement $ _____

Total cost: $ _____

Anticipated tax: $ _____
(The City is not tax exempt; tax will not be factored in total price)

Anticipated time of completion: _____ Days

Written Amount of Total Cost

Contractor's License No. _____

From: _____
Contractor Name

Signature: _____

Printed Name: _____

Title: _____

Date: _____

PERFORMANCE & PAYMENT BOND
(Common Law)

KNOW ALL MEN BY THESE PRESENT: That we (1) _____ _____ a (2) _____ hereinafter called "Principal" and (3) _____ of _____, State of _____, hereinafter called the "Surety", are held and firmly bound unto The City of Fort Smith, Arkansas, a municipal corporation, hereinafter called "Owner" in the penal sum of _____ Dollars ($_____) in lawful money of the United States, for the payment of which sum well and truly to be made, said Principals and Surety bind themselves, their heirs, administrators, executors, successors and assigns, jointly and severally, by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20___, a copy of which is attached and made a part hereof for the construction of:

Roof Replacement of I.T. Building (Old Library)

801 Carnall Avenue Fort Smith, Arkansas 72902

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if the Principal shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, and shall promptly make payments to all persons, firms, subcontractors and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amount due for but not limited to, materials, lubricants, oil, gasoline, coal and coke, repair on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all taxes and insurance premiums on said work, and for all labor performed in such work whether by subcontractor or otherwise, then this obligation shall be void, otherwise to remain in full force and effect.

The Surety agrees the terms of this bond shall cover the payment by the Principal of not less than the prevailing hourly rate of wages, if any at the applicable time, as found by the Arkansas Department of Labor or as determined by the court on appeal to all workmen performing work under the contract.

PROVIDED, FURTHER, that the Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the specifications accompanying the same, or to the work to be performed thereunder, shall in any manner affect the Surety's obligation on this bond, and the Surety does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract, the specifications or the work.

PROVIDED, FURTHER, that no final settlement between the owner and the contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this _____day of _____, 20__.

ATTEST:

_____

(Principal)

_____

(Title)

By: _____

(SEAL)

_____

(Address)

_____

City State Zip

_____

Witness as to Principal

_____

(Surety)

_____

(Address)

_____

City State Zip

ATTEST:

By: _____

(Attorney-in-Fact)

_____

Secretary (Surety)

_____

(Address)

_____

City State Zip

(SEAL)

_____

(Witness as to Attorney-In-Fact)

_____

(Address)

_____

City State Zip

NOTE: Date of Bond must not be prior to date of Contract.

(1) Correct name of Contractor.
(2) A Corporation, a Partnership, or an individual, as case may be.
(3) Correct name of Surety.
(4) Correct name of Owner.
(5) If Contractor is Partnership, all partners should execute bond.
(6) This bond must be filed with the Circuit Court of the County where the work is to be performed prior to the start of construction.

Roofing Specification
For:

City of Fort Smith

I.T. Building (*Old Library)*

801 Carnall Street

Fort Smith, Arkansas

This specification is provided as a general guide for use of listed products based on typical building conditions and standard roofing practices. It is recommended that the Owner's representative independently verify the accuracy and appropriateness of a specification provided for a specific project.

ROOFING SPECIFICATION

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. Deviations: In the event this Specification deviates from the manufacturer's current specification, this specification prevails, except where they conflict with the manufacturer's requirements for the specified guarantee. In this case, the manufacturer's specification prevails.

B. Specification Amendments: Drawings, addenda and modifications may be issued subsequent to the printing of this Specification.

C. Contractor Acceptance: Prior to the project start, ascertain that all aspects of this Specification and possible modifications are workable and do not conflict with the manufacturer's requirements for the specified guarantee. Upon commencement of the work, it will be presumed that this Specification and drawings, addenda and modifications are satisfactory to both the Contractor and the manufacturer in their entirety.

D. Supplied Materials: Supply all materials of the roofing system, including accessory products. The bidding Contractor, by making his bid, represents that his bid price is based on the use of the materials listed in Part 2 Products. Refer to Part 1.03 Description of Work for specific use within each roofing assembly outlined.

1.02 REFERENCE STANDARDS

References in these specifications to standards, test methods, and codes, are implied to mean the latest edition of each such standard adopted. The following is an abbreviated list of associations, institutions, and societies which may be used as references throughout this specification section.

ASTM American Society for Testing and Materials
Philadelphia, PA

FM Factory Mutual Engineering and Research
Norwood, MA

NRCA National Roofing Contractors Association
Rosemont, IL

OSHA Occupational Safety and Health Administrations
Washington, DC

SMACNA Sheet Metal and Air Conditioning Contractors National Association
Chantilly, VA

UL Underwriters Laboratories
Northbrook, IL

1.03 DESCRIPTION OF WORK

The basic work descriptions (components, layering and attachment methods) required in this specification are referenced below.

Project Type: Tear-off

Deck: Structural concrete **Slope:** Less than 1/8 inch

Tapered Insulation: Main Roof: Approved tapered polyisocyanurate system, having a minimum thickness of 1 inch and providing for a roof slope of 1/4 inch, applied in hot asphalt.
Entry Roofs: Approved tapered polyisocyanurate system, having a minimum thickness of ½" inch and providing for a roof slope of 1/16 inch, applied in hot asphalt.

Crickets: Approved polyisocyanurate cricket system, providing for a roof slope of 1/2 inch, applied in hot asphalt in a layout as indicated on the roof plan.

Insulation - top layer: Gypsum roof board, having a thickness of 1/4 inch, applied in hot asphalt.

Roof system: Paradiene 20 TG, torch applied;

Paradiene 30 FR TG, torch applied.

Flashing system: Veral Aluminum, torch applied

Related Work

A. Discard metal components which are defective or deformed to a degree that will affect its performance and replace with new metal components, having matching gauges and profiles.

B. Fabricate and install new metal copings, wall cover, receiver and counter flashings using NRCA / SMACNA recommended details with matching material types and gauges or as listed in **Supplement A**.

C. Fabricate and install new 4 lb. lead emergency overflow drain flashings.

D. Owner to be responsible for handling communication and technical equipment on roof as necessary to facilitate roof work.

1.04 QUALITY ASSURANCE

A. Acceptable Products: Primary roofing products, including each type of sheet, all manufactured in the United States, shall be supplied by a single manufacturer which has been successfully producing the specified types of primary products for not less than 10 years. The primary roofing products shall have maintained a consistent composition for a minimum of five years.

B. Product Quality Assurance Program: Primary roofing materials shall be manufactured under a quality management system that is monitored regularly by a third party auditor under the ISO 9001 audit process. A certificate of analysis for reporting/confirming the tested values of the actual material being supplied for the project will be required prior to project close-out.

C. Acceptable Contractor: Contractor shall have a minimum of 2 years experience in successfully installing the same or similar roofing materials and be certified in writing by the roofing materials manufacturer to install the primary roofing products.

D. Scope of Work: The work to be performed under this specification shall include but is not limited to the following: Attend necessary job meetings and furnish competent and full time supervision, experienced roof mechanics, all materials, tools, and equipment necessary to complete, in an acceptable manner, the roof installation in accordance with this specification. Comply with the latest written application instructions of the manufacturer of the primary roofing products. In addition, application practice shall comply with requirements and recommendations contained in the latest edition of the Handbook of Accepted Roofing Knowledge (HARK) as published by the National Roofing Contractor's Association, amended to include the acceptance of a phased roof system installation. Work includes the removal of existing roof and insulation and installation of tapered inslulation as well as tapered insulation crickets at curbs and installation of specified roof system and other items listed on roof plan and flashings listed in **Supplement A**.

E. Local Regulations: Conform to regulations of public agencies, including any specific requirements of the city and/or state of jurisdiction.

F. Manufacturer Requirements: Ensure that the primary roofing materials manufacturer provides direct trained company personnel to attend necessary job meetings, perform periodic inspections as necessary, and conducts a final inspection upon successful completion of the project.

1.05 GUARANTEE/WARRANTY

A. Roof Membrane Guarantee: Upon successful completion of the project, and after all post installation procedures have been completed, furnish the Owner with the Manufacturer's 20 year labor and materials membrane guarantee. The guarantee shall be a term type, without deductibles or limitations on coverage amount.

> Siplast 20 Year Roof Membrane Guarantee

1.06 SUBMITTALS

All submittals which do not conform to the following requirements will be rejected.

A. Submittals Prior to Contract Award:

1. Letter from the proposed primary roofing manufacturer confirming that the bidder is an acceptable Contractor authorized to install the proposed system.

2. Letter from the primary roofing manufacturer stating that the proposed application will comply with the manufacturer's requirements in order to qualify the project for the specified guarantee.

3. Owner reserves the right to require the taking of sample rolls from the project job site to perform independent laboratory testing to verify compliance. If rolls do not meet the specified test results the roofing manufacturer agrees to pay for testing expense, removal and replacement of out of specification material; this includes paying for materials, freight, labor, and all associated costs. Submittal of bid or of substitution request signifies agreement with this requirement. (See substitution request form **Supplement B**.)

B. Submittals Prior to Project Close-out:

1. Manufacturer's printed recommendations for proper maintenance of the specified roof system including inspection frequencies, penetration addition policies, temporary repairs, and leak call procedures.

1.07 PRODUCT DELIVERY STORAGE AND HANDLING

A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.

B. Storage: Store materials out of direct exposure to the elements on pallets placed over clean, flat and dry surfaces. Storage of pallets over dirt, grass-covered ground or newly placed concrete may result in upward moisture transpiration and contamination of product. Store rolls of roofing on end. For roof-top storage, avoid overloading of deck and building structure. Factory packaging is not intended for job site protection. Slit factory packaging immediately upon arrival at the job site to prevent build-up of condensation and cover materials using a breathable cover such as a canvas. Polyethylene or other non-breathable plastic coverings shall not be used. Store flammable or temperature sensitive materials away from open flame, ignition sources or excessive heat.

C. Handling: Handle all materials in such a manner as to preclude damage and contamination with moisture or foreign matter. Handle rolled goods to prevent damage to edges or ends.

D. Damaged Material: Any materials that are found to be damaged or stored in any manner other than stated above will be automatically rejected, removed and replaced at the Contractor's expense.

1.08 PROJECT/SITE CONDITIONS

A. Requirements Prior to Job Start

1. **Notification:** Give a minimum of 5 days notice to the Owner and manufacturer prior to commencing any work and notify both parties on a daily basis of any change in work schedule.

2. **Permits:** Obtain all permits required by local agencies and pay all fees which may be required for the performance of the work.

3. **Safety:** Familiarize every member of the application crew with all fire and safety regulations recommended by OSHA, NRCA and other industry or local governmental groups.

B. Environmental Requirements

1. **Precipitation:** Do not apply roofing materials during precipitation or in the event there is a probability of precipitation during application. Take adequate precautions to ensure that materials, applied roofing, and building interiors are protected from possible moisture damage or contamination.

2. **Temperature Restrictions - asphalt:** At ambient temperatures of 40°F (4°C) and below, special precautions must be taken to ensure that the specified Type IV asphalt maintains a minimum acceptable 400°F (204°C) at the point of sheet application. The asphalt must not be overheated to compensate for cold conditions. The use of insulated handling equipment is strongly recommended. Hot luggers, mop carts, and kettle-to-roof supply lines should be insulated. Hand mops should be constructed with a smaller yarn head to facilitate short moppings. Luggers and mop carts should never be more than half filled at all times.

3. **Temperature Restrictions – self-adhesive sheets:** The minimum required substrate temperature at point of application is 60°F (15°C). Maintain a minimum roof membrane material temperature above 60°F (15°C). In low temperature conditions, materials should be kept warm prior to application. Suspend application in situations where the self-adhered base ply cannot be kept at temperatures allowing for proper adhesion.

C. Protection Requirements

1. **Membrane Protection:** Provide protection against staining and mechanical damage for newly applied roofing and adjacent surfaces throughout this project.

2. **Torch Safety:** Crew members handling torches shall be trained by an Authorized Certified Roofing Torch Applicator (CERTA) Trainer, be trained according to CERTA torch safety guidelines as published by the National Roofing Contractor's Association (NRCA), and follow torch safety practices as required by the contractor's insurance carrier. Designate one person on each crew to perform a daily fire watch. The designated crew member shall watch for fires or smoldering materials on all areas during roof construction activity, and for the minimum period required by CERTA guidelines after roofing material application has been suspended for the day.

3. **Limited Access:** Prevent access by the public to materials, tools and equipment during the course of the project.

4. **Debris Removal:** Remove all debris daily from the project site and take to a legal dumping area authorized to receive such materials.

5. **Site Condition:** Complete, to the owner's satisfaction, all job site clean-up including building interior, exterior and landscaping where affected by the construction.

PART 2 PRODUCTS

2.01 ROOFING SYSTEM ASSEMBLY/PRODUCTS

A. Rigid Roof Insulation: Roof insulation shall be UL and FM approved. Insulation shall be approved in writing by the insulation manufacturer for intended use and for use with the

specified roof assembly. Maintain a maximum panel size of 4 feet by 4 feet where insulation is specified to be installed in hot asphalt.

1. **Polyisocyanurate Tapered Roof Insulation:** Tapered panels and standard fill panels composed of a closed cell, rigid polyisocyanurate foam core material, integrally laminated between glass fiber reinforced organic facers, in full compliance with ASTM C 1289, Type II, Class 1, Grade 2 (20 psi). The tapered system shall have a minimum thickness of 1 inch (1/2" on entry roofs) and provide for a roof slope of 1/4 inch per foot (1/16 inch per foot on entry roofs). Acceptable types are as follows.

    - Tapered Paratherm by Siplast; Irving, TX
    - ACFoam II Tapered Insulation Systems by Atlas Roofing Corporation; Atlanta, GA
    - Tapered ENRGY 3 by Johns Manville, Inc.; Denver, CO
    - Tapered H-Shield by Hunter Panels, LLC, Portland, ME
    - Tapered Energyguard by GAF, Parsippany, NJ

2. **Polyisocyanurate Crickets:** Tapered panels and standard fill panels composed of a closed cell, rigid polyisocyanurate foam core material, integrally laminated between glass fiber reinforced organic facers, in full compliance with ASTM C 1289, Type II, Class 1, Grade 2 (20 psi). The cricket system shall provide for a roof slope of 1/2 inch per foot. Acceptable types are as follows.

    - Tapered Paratherm by Siplast; Irving, TX
    - ACFoam II Tapered Insulation Systems by Atlas Roofing Corporation; Atlanta, GA
    - Tapered ENRGY 3 by Johns Manville, Inc.; Denver, CO
    - Tapered H-Shield by Hunter Panels, LLC, Portland, ME
    - Tapered Energyguard by GAF, Parsippany, NJ

3. **Gypsum Sheathing Panel:** A panel composed of a gypsum based, non-structural water resistant core material integrally bonded with fiberglass mats on both sides having a nominal thickness of 1/4 inch. The panel surface shall be factory primed with a non-asphaltic primer. Acceptable types are as follows:

    - DensDeck Prime Gypsum Roof Board, by Georgia Pacific Corporation; Atlanta, GA
    - Securock®, by United States Gypsum Company; Chicago, IL

2.02 DESCRIPTION OF SYSTEMS

A. **Roofing Membrane Assembly:** A roof membrane assembly consisting of two plies of a prefabricated, reinforced, homogeneous Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane, applied over a prepared substrate. Reinforcement mats shall be impregnated/saturated and coated each side with SBS modified bitumen blend and coated one side with a torch grade SBS bitumen blend adhesive layer. The adhesive layer shall be manufactured using a process that embosses the surface with a grooved pattern to provide optimum burn-off of the plastic film and to maximize application rates. The cross sectional area of the sheet material shall contain no oxidized or non-SBS modified bitumen. The roof system shall pass 500 cycles of ASTM D 5849 Resistance to Cyclic Joint Displacement (fatigue) at 14°F (-10°C). Passing results shall show no signs of membrane cracking or interply delamination after 500 cycles. The roof system shall pass 200 cycles of ASTM D 5849 after heat conditioning performed in accordance with ASTM D 5147. The

assembly shall possess waterproofing capability, such that a phased roof application, with only the modified bitumen base ply in place, can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire roof system.

> Siplast Paradiene 20 TG/30 FR TG torchable roof system

1. Modified Bitumen Base and Stripping Ply

a) Thickness (avg): 114 mils (2.9 mm) (ASTM D 5147)
b) Thickness (min): 110 mils (2.8 mm) (ASTM D 5147)
c) Weight (min per 100 ft² of coverage): 76 lb (3.7 kg/m²)
d) Maximum filler content in elastomeric blend: 35% by weight
e) Low temperature flexibility @ -15º F (-26º C) - PASS (ASTM D 5147)
f) Peak Load (avg) @ 73ºF (23ºC): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
g) Peak Load (avg) @ 0ºF (-18ºC): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
h) Ultimate Elongation (avg.) @ 73ºF (23ºC): 50% (ASTM D 5147)
i) Dimensional Stability (max): 0.1% (ASTM D 5147)
j) Compound Stability (min): 250ºF (121ºC) (ASTM D 5147)
k) Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
l) Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria

> Siplast Paradiene 20 - torchable grade

2. Modified Bitumen Finish Ply

a) Thickness (avg): 138 mils (3.5 mm) (ASTM D 5147)
b) Thickness at selvage (coating thickness) (avg): 118 mils (3.0 mm) (ASTM D 5147)
c) Thickness at selvage (coating thickness) (min): 114 mils (2.9 mm) (ASTM D 5147)
d) Weight (min per 100 ft² of coverage): 112 lb (5.4 kg/m²)
e) Maximum filler content in elastomeric blend: 35% by weight
f) Low temperature flexibility @ -15ºF (-26ºC): PASS (ASTM D 5147)
g) Peak Load (avg) @ 73ºF (23ºC): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
h) Peak Load (avg) @ 0ºF (-18ºC): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
i) Ultimate Elongation (avg.) @ 73ºF (23ºC): 55% (ASTM D 5147)
j) Dimensional Stability (max): 0.1% (ASTM D 5147)
k) Compound Stability (min): 250ºF (121º C) (ASTM D 5147)
l) Granule Embedment (max individual loss): 2.0 grams per sample (ASTM D 5147)
m) Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
n) Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria
o) Surfacing: ceramic granules

> Siplast Paradiene 30 FR - torchable grade

B. Flashing Membrane Assembly: A flashing membrane assembly consisting of a prefabricated, reinforced, Styrene-Butadiene-Styrene (SBS) block copolymer modified asphalt membrane with a continuous, channel-embossed metal-foil surfacing. The finish ply shall conform to ASTM D 6298 and the following physical and mechanical property requirements.

> Siplast Veral flashing system, aluminum finish

1. Cant Backing Sheet and Flashing Reinforcing Ply

a) Thickness (avg): 102 mils (2.6 mm) (ASTM D 5147)
b) Thickness (min): 98 mils (2.5 mm) (ASTM D 5147)
c) Weight (min per 100 ft² of coverage): 72 lb (3.5 kg/m²)
d) Maximum filler content in elastomeric blend: 35% by weight
e) Low temperature flexibility @ -15° F (-26° C) - PASS (ASTM D 5147)
f) Peak Load (avg) @ 73°F (23°C): 30 lbf/inch (5.3 kN/m) (ASTM D 5147)
g) Peak Load (avg) @ 0°F (-18°C): 75 lbf/inch (13.2 kN/m) (ASTM D 5147)
h) Ultimate Elongation (avg.) @ 73°F (23°C): 50% (ASTM D 5147)
i) Dimensional Stability (max): 0.1% (ASTM D 5147)
j) Compound Stability (min - sheet): 250°F (121°C) (ASTM D 5147)
k) Compound Stability (min – adhesive coating): 212°F (100°C) (ASTM D 5147)
l) Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
m) Reinforcement: fiberglass mat or other meeting the performance and dimensional stability criteria
n) Back Surfacing: polyolefin film

> Siplast Paradiene 20 SA

2. Metal-Clad Modified Bitumen Flashing Sheet

a) Thickness (avg): 150 mils (3.8 mm) (ASTM D 5147)
b) Thickness (min): 146 mils (3.7 mm) (ASTM D 5147)
c) Weight (min per 100 ft² of coverage): 96 lb (4.5 kg/m²)
d) Coating Thickness – back surface (min): 40 mils (1 mm) (ASTM D 5147)
e) Low temperature flexibility @ 0° F (-18° C): PASS (ASTM D 5147)
f) Peak Load (avg) @ 73°F (23°C): 85 lbf/inch (15 kN/m) (ASTM D 5147)
g) Peak Load (avg) @ 0°F (-18°C): 180 lbf/inch (31.7 kN/m) (ASTM D 5147)
h) Ultimate Elongation (avg) @ 73°F (23°C): 45% (ASTM D 5147)
i) Tear-Strength (avg): 120 lbf (0.54 kN) (ASTM D 5147)
j) Dimensional Stability (max): 0.2% (ASTM D 5147)
k) Compound Stability (min): 225°F (107°C) (ASTM D 5147)
l) Cyclic Thermal Shock Stability (maximum): 0.2% (ASTM D 7051)
m) Approvals: UL Approved, FM Approved (products shall bear seals of approval)
n) Reinforcement: fiberglass scrim mat or other meeting the performance and dimensional stability criteria
o) Surfacing: aluminum metal foil

> Siplast Veral Aluminum

C. Catalyzed Acrylic Resin Flashing System: A specialty flashing system consisting of a liquid-applied, fully reinforced, multi-component acrylic membrane installed over a prepared or primed substrate. The flashing system consists of a catalyzed acrylic resin primer, basecoat and topcoat, combined with a non-woven polyester fleece. The resin and catalyst are pre-mixed immediately prior to installation. The use of the specialty flashing system shall be specifically approved in advance by the membrane manufacturer for each application.

> Parapro 123 Flashing System by Siplast; Irving, TX

D. Substitute Roof Systems: The following substitute roof systems are approved for use in lieu of the specified roof system. No other substitutions will be accepted.

Manufacturer
Soprema Roofing and Waterproofing, Inc.
Wadsworth, OH

Base Ply - Sopralene Flam 180 and Sopralene 180 Sanded
Finish Ply - Sopralene Flam 250 FR GR
Stripping Ply and Flashing Reinforcing Sheet - Sopralene Flam 180 or Sopralene 180 Sanded
Flashing Sheet - Sopralast TV Aluminum
Walkpad - Soprawalk

Manufacturer:
Johns Manville
Denver, CO

Base Ply – DynaWeld 180 S, DynaPly or DynaPly T1
Finish Ply - DynaWeld Cap 250 FR or DynaKap FR T1 HW
Flashing Sheet - Dynaclad
Stripping Ply and Flashing Reinforcing Sheet – DynaWeld 180 S or DynaPly
Flashing Sheet – Dynaclad
Walkpad - DynaTred

2.03 ROOFING ACCESSORIES

A. Roofing Adhesives

1. **Mopping Asphalt:** Type IV asphalt certified for full compliance with the requirements listed in Table I, ASTM D 312. Each container or bulk shipping ticket shall indicate the equiviscous temperature, EVT, the finished blowing temperature, FBT, and the flash point, FP. Mopping asphalt shall be approved in writing by the roof membrane manufacturer.

B. Bituminous Cutback Materials

1. **Primer:** A high flash, quick drying, asphalt solvent blend which meets or exceeds ASTM D 41 requirements.

   > Siplast PA-1125 Asphalt Primer by Siplast; Irving, TX

2. **Primer for Self-Adhesive Sheets:** A quick drying, low-VOC, water-based, high-tack primer specifically designed to promote adhesion of roofing and waterproofing sheets to approved substrates. Primer shall meet South Coast Air Quality District and Ozone Transport Commission requirements.

   > Siplast TA-119 Primer by Siplast; Irving, TX

3. **Mastics:** An asphalt cutback mastic, reinforced with non-asbestos fibers, used as a base for setting metal flanges conforming to ASTM D 4586 Type II requirements.

   > Siplast PA-1021 Plastic Cement by Siplast; Irving, TX

C. Sealant (horizontal applications): A moisture-curing, self-leveling elastomeric sealant designed for roofing applications. The sealant shall be approved by the roof membrane manufacturer for use in conjunction with the roof membrane materials. Acceptable types are as follows:

> Siplast PS-209 Elastomeric Sealant by Siplast; Irving, TX

D. Sealant (vertical and sloped applications): A moisture-curing, non-slump elastomeric sealant designed for roofing applications. The sealant shall be approved by the roof membrane manufacturer for use in conjunction with the roof membrane materials. Acceptable types are as follows:

> Siplast PS-715 NS Elastomeric Sealant by Siplast; Irving, TX

E. Ceramic Granules: No. 11 grade specification ceramic granules of color scheme matching the granule surfacing of the finish ply.

F. Perlite Cant Strips: A cant strip composed of expanded volcanic minerals combined with waterproofing binders. The top surface shall be pre-treated with an asphalt based coating. The face of the cant shall have a nominal 4 inch dimension.

G. Fasteners

1. **Flashing Reinforcing Sheet Fasteners for Wood/Plywood Substrates to Receive Flashing Coverage:** Fasteners shall be approved by the manufacturer of the primary roofing products. Acceptable fasteners for specific substrate types are listed below.

   a) Wood/Plywood Substrates

   - A 12 gauge, spiral or annular threaded shank, zinc coated steel roofing fastener having a minimum 1 inch head.

     > Square Cap by W.H. Maze Co.; Peru, IL
     > 12 Gauge Simplex Nail by the Simplex Nail and Manufacturing Co., Americus, GA

2. **Wood Nailer Fasteners** Wood blocking fasteners and plates shall be FM Approved, and/or approved by the manufacturer of the primary roofing products. Acceptable fastener manufacturers are listed below.

   a) Wood Blocking: Mechanical fasteners for wood blocking shall be factory coated for corrosion resistance. Acceptable fastener types are listed below.

   - A fluorocarbon coated screw type roofing fastener having a minimum 0.220 inch thread diameter. Plates used in conjunction with the fastener shall be a metal type having a minimum 3 inch diameter, as supplied by the fastener manufacturer.

     > Parafast Fastener by Siplast; Irving, TX
     > Roofgrip with Buildex Metal Plates by ITW Buildex; Itasca, IL
     > Dekfast #12 with Dekfast Steel Hexagonal Plates by Construction Fasteners, Inc.; Wyomissing, PA
     > Standard Roofing Fastener by OMG; Agawam, MA

H. Walktread: A prefabricated, puncture resistant polyester core reinforced, polymer modified bitumen sheet material topped with a ceramic-coated granule wearing surface.

1. Thickness: 0.217 in (5.5 mm)
2. Weight: 1.8 lb/ft² (8.8 kg/m²)
3. Width: 30 in (76.2 cm)

> Paratread Roof Protection Material by Siplast; Irving, TX

2.04 RELATED COMPONENTS

A. Rough Carpentry: Lumber used for nailers, curbs, and cants shall be No. 2 kiln dried (19% maximum moisture content after treatment), grade marked, and surfaced on four sides. Lumber shall be salt treated with Wolman Salts (wood shall retain 0.25 lbs. dry salt per cubic foot of wood) or an approved equal.

1. **Perimeter Nailers for Edge Metal Securement.** Lumber shall have a nominal 6 inch width with a thickness to match the height of the new insulation assembly.

2. **Wood Sleepers And Blocking:** Lumber blocking, used for supporting small rooftop and light air conditioning units shall have a 4 inch by 4 inch width and thickness. Wood blocking used to support small pipes shall have a minimum 12 inch length. Lengths of wood sleepers for supporting air conditioning units shall be such that a minimum of 12 inches shall extend beyond each unit at both sides.

B. Perlite Cant Strips: A cant strip composed of expanded volcanic minerals combined with waterproofing binders. The top surface shall be pre-treated with an asphalt based coating. The face of the cant shall have a nominal 4 inch dimension.

C. Lead Drain Flashings: Formable type, weighing a minimum of 4 lb. per square foot; in sheets of minimum 30 inch x 30 inch dimension.

D. Lead Pipe Flashings: Preformed from sheet stock weighing a minimum of 4 lb. per square foot, and soldered with a minimum 4 inch perimeter flange with a sleeve opening fabricated to fit closely around the penetration without forcing. Lead sleeve length shall be of sufficient height to allow a minimum of 1 inch to be crimped inside of the pipe stack.

E. Fabricated Metal: Fabricate the following fabricated metal components from minimum 24 gauge, G 90 galvanized steel, primed and coated with a 70% Kynar based fluoropolymer coating of 1.0 $\pm$ 0.1 mil total dry film thickness. Color to be selected by the owner.

1. **Metal Coping Cap:** Fabricate the metal cap with a width to adequately cover the top of the parapet wall; incorporating a minimum 4 inch face on each side. The bottom edge of each fascia shall have a minimum 1/2 inch drip edge, hemmed and formed at 30 degrees and shall be fabricated for attachment to a continuous cleat at each side of the parapet. Fabricate components in maximum 10 foot sections. Provide fabricated corners to extend a minimum of 1 foot in either direction from the corner. All joints shall have minimum 4 in wide cover plates.

2. **Reglet Counter Flashing.** Fabricate metal counterflashings at existing masonry walls in a 2 component configuration.

   - Fabricate the counterflashing pocket receiver to accept the counterflashing and fit into the masonry reglet a minimum of 1 1/2 inches. Notch the flashing receiver at all corners and joints.

   - Fabricate the counterflashing to fit into the pocket receiver, using button punches in the counterflashing to secure the flashing. Fabricate the bottom edge of the counterflashing to have a minimum 1/2 inch drip edge, formed at 45 degrees. Fabricate the counterflashing in maximum ten foot sections and notch inside corners and joints and seam outside corners.

PART 3 EXECUTION

3.01 FIELD QUALITY CONTROL

A. Pre-Job Conference: Conduct a pre-job conference to include the designer, Owner, roofing Contractor and manufacturer's representative prior to application of roofing.

B. Foremen: Provide the roofing foreman with a copy of these specifications to be available at the job site at all times. The presence of specifications and an inspector shall not relieve the Contractor of strict compliance with the manufacturer's specifications, detail drawings, and/or approved material requirements.

C. Deck Penetrations: Verify that work penetrating the roof deck, or which may otherwise affect the roofing application, has been properly completed.

D. Final Inspection – post installation meeting: Arrange a meeting at the completion of the project to be attended by all parties that were present at the pre-job conference. A punch list of items required for completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.

3.02 PREPARATION

A. General: Sweep or vacuum all surfaces, removing all loose aggregate and foreign substances prior to commencement of roofing.

B. Remove All Existing:

- Surface gravel
- Roof membrane
- Insulation
- Base flashings
- Flanged metal flashings
- Cants
- Walkways
- Non functional penetrations/curbs
- Drain flashing assemblies
- Vapor retarder

- Metal, counter flashing on main roof

C. Wall Preparation: Repair minor cracks, surface irregularities, and open joints in masonry walls using a quick dry grout mix to ensure a smooth, even surface for application of the roofing/flashing membranes.

D. Existing Curbs: Raise all existing curbs to accommodate a new minimum height of 8 inches.

3.03 SUBSTRATE REQUIREMENTS

A. Roof Decks: Structural roof decks should properly provide sufficient strength to support anticipated dead and live loads and normal construction traffic without excessive deflection or movement. All openings, walls or projections through the roof deck should be completed before application of the roof membrane is begun. The deck should be constructed and necessary deck repairs made according to the deck manufacturer's specifications following best established practices.

1. **Poured Reinforced Concrete:** Poured reinforced concrete decks should be fully cured, dry, frost-free, relatively smooth, broomed-cleaned and free from release or curing agents. All projections or depressions should be leveled. Prime the deck with asphalt primer at the rate of 1 gallon per 100 square feet and allow to dry thoroughly.

3.04 SUBSTRATE PREPARATION

A. Perimeter Wood Nailers: Install perimeter wood nailers in accordance with the guidelines set forth in latest edition of FM Global Property Loss Prevention Data Sheet 1-49.

B. Insulation: Install insulation panels with end joints offset; edges of the panels shall be in moderate contact without forcing applied in strict accordance with the insulation manufacturer's requirements and the following instructions. Where insulation is installed in two or more layers, stagger joints between layers. Maintain a maximum panel size of 4 feet by 4 feet for insulation applied in hot asphalt.

1. **Insulation - multiple layer**: Install all layers in a solid mopping of hot asphalt. Stagger the panel joints between insulation layers.

2. **Crickets:** Construct crickets of tapered insulation panels in a layout as indicated on the roof plan.

3.05 ROOF MEMBRANE INSTALLATION - GENERAL

A. Membrane Application: Apply roofing in accordance with roofing system manufacturer's instructions and the following requirements. Application of roofing membrane components shall immediately follow application of base sheet and/or insulation as a continuous operation.

B. Aesthetic Considerations: Construction of an aesthetically pleasing overall appearance of the finished roof application is a standard requirement for this project. Make necessary

preparations, utilize recommended application techniques, apply the specified materials including granules, and exercise care in ensuring that the finished application is acceptable to the Owner.

C. Priming: Prime metal and concrete and masonry surfaces with a uniform coating of the specified asphalt primer.

D. Kettles And Tankers: Kettles and tankers shall be equipped with accurate, fully readable thermometers. Do not heat asphalt to or above its flash point. Avoid heating at or above the FBT, should conditions make this impractical, heating must be no more than 25ºF below the EVT and no more than 25ºF above EVT.

E. Asphalt Temperatures: If the EVT information is not provided, the following asphalt temperature shall be observed. Maximum heating temperature shall be 525ºF (274ºC). Minimum application temperature shall be 400ºF (204ºC).

F. Asphalt Moppings: Ensure that all moppings do not exceed a maximum of 25 lb/sq. Mopping shall be total in coverage, leaving no breaks or voids.

G. Bitumen Consistency: Cutting or alterations of bitumen, primer, and sealants will not be permitted.

H. Roofing Application: Apply all layers of roofing free of wrinkles, creases or fishmouths. Exert sufficient pressure on the roll during application to ensure prevention of air pockets.

1. Apply all layers of roofing perpendicular to the slope of the deck.

2. Fully bond the base ply to the prepared substrate, utilizing minimum 3 inch side and end laps. Apply each sheet directly behind the torch applicator. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application. Stagger end laps a minimum of 3 feet.

3. Fully bond the finish ply to the base ply, utilizing minimum 3 inch side and end laps. Apply each sheet directly behind the torch applicator. Stagger end laps of the finish ply a minimum 3 feet. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application. Stagger side laps of the finish ply a minimum 12 inches from side laps in the underlying base ply. Stagger end laps of the finish ply a minimum 3 feet from end laps in the underlying base ply.

4. Maximum sheet lengths and special fastening of the specified roof membrane system may be required at various slope increments where the roof deck slope exceeds 1/2 inch per foot. The manufacturer shall provide acceptable sheet lengths and the required fastening schedule for all roofing sheet applications to applicable roof slopes.

I. Granule Embedment: Broadcast mineral granules over all bitumen overruns on the finish ply surface, while the bitumen is still hot or the adhesive is soft, to ensure a monolithic surface color.

J. Flashing Application: Cut the cant backing sheet into 12 inch widths and peel the release film from the back of the sheet. Set the sheet into place over the primed substrate extending 6 inches onto the field of the roof area and 6 inches up the vertical surface utilizing minimum 3 inch laps. Set the non-combustible cant into place dry prior to

installation of the roof membrane base ply. Flash walls and curbs using the reinforcing sheet and the metal foil flashing membrane. After the base ply has been applied to the top of the cant, prime the base ply surfaces to receive the reinforcing sheet. Fully adhere the reinforcing sheet, utilizing minimum 3 inch side laps onto the primed base ply surface and up the primed wall or curb to the desired flashing height. After the final roofing ply has been applied to the top of the cant, prepare the surface area that is to receive flashing coverage by torch heating granular surfaces or by application of asphalt primer; allowing primer to dry thoroughly. Torch apply the metal foil-faced flashing into place using three foot widths (cut off the end of roll) always lapping the factory selvage edge. Stagger the laps of the metal foil flashing layer from lap seams in the reinforcing layer. Extend the flashing sheet a minimum of 4 inches beyond the toe of the cant onto the prepared surface of the finished roof and up the wall or curb to the desired flashing height. Exert pressure on the flashing sheet during application to ensure complete contact with the vertical/horizontal surfaces, preventing air pockets; this can be accomplished by using a damp sponge or shop rag. Check and seal all loose laps and edges. Nail the top edge of the flashing on 9 inch centers. (See manufacturer's schematic for visual interpretation).

K. Catalyzed Acrylic Resin Flashing System: Install the liquid-applied primer and flashing system in accordance with the membrane system manufacturer's printed installer's guidelines and other applicable written recommendations as provided by the manufacturer.

L. Water Cut-Off: At end of day's work, or when precipitation is imminent, construct a water cut-off at all open edges. Cut-offs can be built using asphalt or plastic cement and roofing felts, constructed to withstand protracted periods of service. Cut-offs must be completely removed prior to the resumption of roofing.

3.06 RELATED COMPONENTS - INSTALLATION

A. Walktread: Cut the walktread into maximum 5 foot lengths and allow to relax until flat. Adhere the sheet using the specified plastic cement. Apply the specified cement in a 3/8 inch thickness to the back of the product in 5 inch by 5 inch spots in accordance with the pattern as supplied by the walktread manufacturer. Walk-in each sheet after application to ensure proper adhesion. Use a minimum spacing of 2 inches between sheets to allow for proper drainage.

B. Sealant: Caulk all exposed finish ply edges at the transition to metal flashings incorporated into the roof system with a smooth continuous bead of the specified sealant.

3.07 SPECIAL CONDITIONS

A. Site Condition: Leave all areas around job site free of debris, roofing materials, equipment and related items after completion of job.

B. Notification Of Completion: Notify the manufacturer by means of manufacturer's printed Notification of Completion form of job completion in order to schedule a final inspection date.

C. Final Inspection

1. **Post-Installation Meeting:** Hold a meeting at the completion of the project, attended by all parties that were present at the pre-job conference. A punch list of items required for

completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.

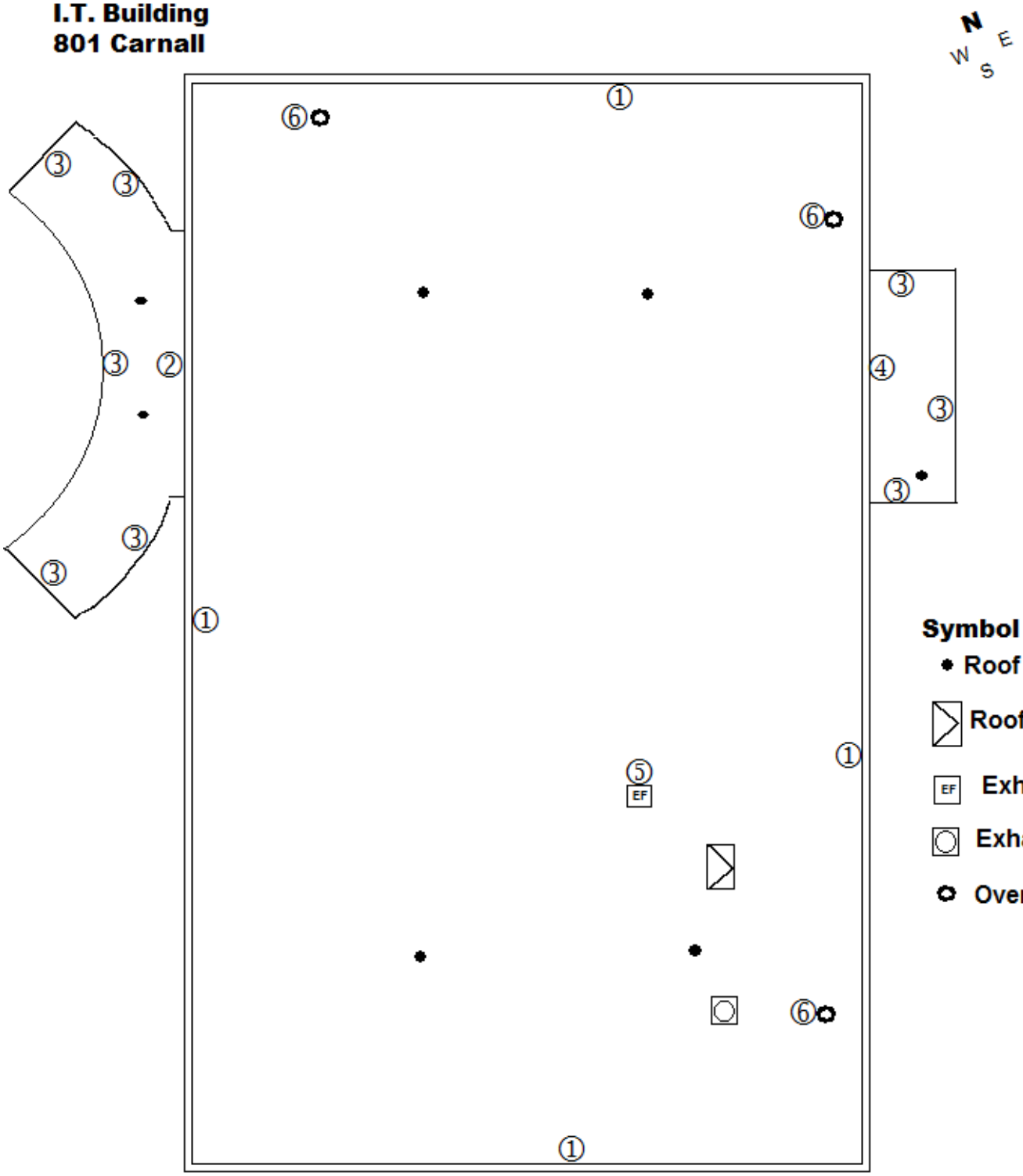
2. **Drain Verification:** At final inspection of all work, verify that all drains and scuppers, are functioning properly. Ensure that roof drains have adequate strainers.

3. **Air Handling Units:** Reconnect all ductwork, electrical and supply connections. At final inspection, verify that all connections are restored to a complete working, watertight, and safe condition, following SMACNA standards.

D. Issuance Of The Guarantee: Complete all post installation procedures and meet the manufacturer's final endorsement for issuance of the specified guarantee.

SUPPLEMENT A

City of Fort Smith
I.T. Building
801 Carnall



SUPPLEMENT A (cont.)

Work Scope General Notes:

At main roof, remove existing roof & insulation. Install tapered isocyanurate insulation with 1" start at drains, specified 1/4" per foot slope design as shown on layout, (install tapered isocyanurate crickets at curbs), specified cover board with Type IV steep asphalt. At entry roofs, install tapered isocyanurate insulation with 1/2" start at drains and specified 1/16" per foot slope design as shown on lay out and specified cover board with Type IV steep asphalt. On all areas install (1) ply specified modified bitumen field and flashing ply torch applied. On all areas, install (1) ply specified granule surfaced modified bitumen cap ply torch applied. Install specified base flashing at walls and curbs. Replace all existing penetration and drain flashings, (or install where none exist) for penetrations that are to remain in use with new flashings compatible with roof specification. Install specified walk pad at scuttle landing.

① Install 24 gauge Kynar finish steel coping with 24 gauge galvanized metal anchor cleat. Install 24 gauge Kynar finish steel wall cover-receiver flashing at back side of all parapet walls starting under coping. Install 24 gauge Kynar finish steel counter flashing at wall cover-receiver flashing.

② Leave existing counter flashing in place and install 24 gauge Kynar finish steel counter flashing extension compatible with base flashing. (All work must be completed in a manner so that any existing brick weep holes remain functional).

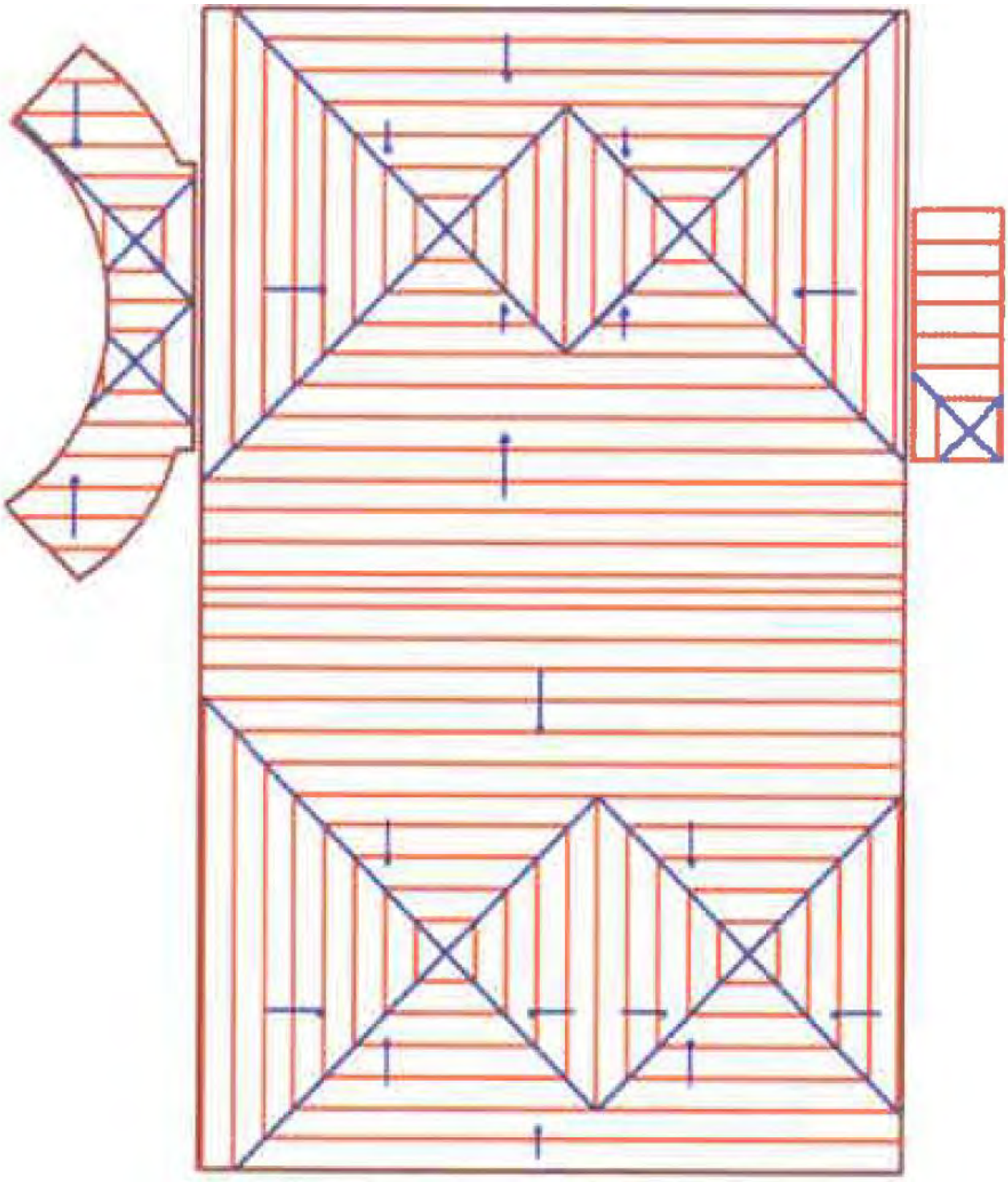
③ Install 2"x 8" wood blocking cut to fit top of concrete parapet. Install 24 gauge Kynar finish steel coping with 24 gauge galvanized metal anchor cleat. Coping installation to accommodate base flashing.

④ Leave existing counter flashing in place and install 24 gauge Kynar finish steel counter flashing extension compatible with base flashing. (Work must be completed in a manner so that any existing brick weep holes remain functional).

⑤ Increase exhaust curb height to accomodate 8" base flashing. Install counter flashing a curb for complete watertight detail.

⑥ Install overflow drain extension flashings to match thickness of insulation and new lead flashings.

SUPPLEMENT A (cont.) (Insulation layout)



SUPPLEMENT B

SUBSTITUTION REQUEST

PROJECT NAME: _____ LOCATION: _____

ROOF AREA(S): _____ SLOPE: _____ inch(es)

MANUFACTURER: _____ SYSTEM NAME: _____

ASTM test result evaluation:
Provide official laboratory results demonstrating compliance to the following requirements.

Minimum Physical and Mechanical Properties

MATERIAL PROPERTY	PRODUCT NAME	STANDARD METHOD	CRITERIA	TEST RESULT
GRANULE EMBEDMENT – As granule loss occurs, bitumen may be exposed to UV causing premature aging of the sheet				
FINISH PLY		**ASTM D 5147**	**Maximum 1.5 grams loss average result, and 2.0 grams loss per individual specimen**	
DIMENSIONAL STABILITY - Dimensional stability is directly related to membrane shrinkage. Related problems include but are not limited to, lap shear stress, wrinkling, ridging, stress at flashing, and potential areas of SBS bitumen exposed to UV.				
BASE PLY		**ASTM D 5147**	**Maximum 0.5%**	
FINISH PLY		**ASTM D 5147**	**Maximum 0.5%**	
FLASHING SHEET		**ASTM D 5147**	**Maximum 0.5%**	
SBS-MODIFIED BITUMEN CROSS SECTION – When oxidized asphalt is used to saturate reinforcement, there is a reduction in performance. All oxidized bitumen continues to oxidize over time.				
BASE PLY		**UV Fluorescence microscopy**	**Only SBS-modified bitumen in the sheet cross-section (top-to-bottom)**	
FINISH PLY		**UV Fluorescence microscopy**	**Only SBS-modified bitumen in the sheet cross-section (top-to-bottom)**	
FLASHING SHEET		**UV Fluorescence microscopy**	**Only SBS-modified bitumen in the sheet cross-section (top-to-bottom)**	

SUPPLEMENT B (Cont.)

LOW TEMPERATURE FLEXIBILITY – As manufactured, or unaged, products with high quality SBS blend should exhibit low temperature flexibility numbers below 0°F.				
BASE PLY		**ASTM D 5147**	**Pass 0°F before and after aging.**	
FINISH PLY		**ASTM D 5147**	**Pass 0°F before and after aging.**	
FLASHING SHEET		**ASTM D 5147**	**Pass 0°F before and after aging.**	
ULTIMATE ELONGATION (ELONGATION AT 5% PEAK LOAD) – It is a good indicator of SBS blend quality for most glass reinforced materials.				
BASE PLY		**ASTM D 5147**	**50% (unaged)**	
FINISH PLY		**ASTM D 5147**	**50% (unaged)**	
FLASHING SHEET		**ASTM D 5147**	**50% (unaged)**	
RESISTANCE TO CYCLIC FATIGUE – Test method provides data on classifying polymer-modified bituminous membranes by their performance related to the fatigue conditions to which they are subjected.				
COMPOSITE ASSEMBLY (BASE AND FINISH PLIES TOGETHER)		**ASTM D 5849, condition 4**	**Pass 500 cycles new, 200 cycles aged**	
COMPOUND STABILITY – This test is a measure of the modified bitumen blend's resistance to flow at high temperature.				
BASE PLY		**ASTM D 5147**	**>225 F**	
FINISH PLY		**ASTM D 5147**	**>225 F**	
FLASHING SHEET		**ASTM D 5147**	**>225 F**	
FILLER CONTENT – Asphalt, filler, and SBS ratios can vary within reasonable limits creating different high performance formulations. The key is that the chemical integrity of the asphalt/SBS mixture must be invariable day-to-day, batch-to-batch				

RESOLUTION NO. R-121-08

A RESOLUTION CONFIRMING POLICY OF THE CITY OF FORT SMITH REQUIRING ALL CONTRACTORS PROVIDING SERVICES TO THE CITY OF FORT SMITH TO COMPLY WITH LAWS AND REGULATIONS INCLUDING THOSE REGARDING WORKERS WHO ARE NOT CITIZENS OF THE UNITED STATES

BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE CITY OF FORT SMITH ARKANSAS, THAT:

SECTION 1: The policy of the City of Fort Smith is hereby confirmed that all contractors providing services or selling goods or equipment to the City of Fort Smith shall keep themselves fully informed of and comply with all federal, state and local laws and regulations, specifically including, without limitation, laws and regulations concerning work performed by persons who are not citizens of the United States.

SECTION 2: In keeping with the policy confirmed in Section 1 above, the administrative officials of the City shall cause to inserted in each contract for services or construction of public works and contract for the purchase of goods and equipment for the City of Fort Smith a provision substantially the same as the following:

> The [Contractor] [Seller] shall keep fully informed of all federal, state and local laws, ordinances and regulations, and all orders and decrees of bodies or tribunals having jurisdiction or authority, which in any manner affect those engaged or employed [in the work required by the contract] [in the sale of the subject goods or equipment], specifically including without limitation, laws and regulations pertaining to the employment of persons who are not citizens of the United States. Further, the [Contractor] [Seller] shall at all times observe and comply with all such laws, ordinances, regulations, quarantines, orders, and decrees and shall protect and indemnify the City of Fort Smith and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree.

Approved as to form
HC
No publication required

Each Contractor for services or construction of public works with whom the City contracts shall cause a provision substantially the same as set forth in this Section 2 to be placed in each subcontract entered into by the Contractor with reference to the performance of services or public works on behalf of the City.

SECTION 3: The administrative officials of the City shall obtain a written certification from each contractor with whom the City contracts for the providing of services or construction of public works, which certification shall verify that the contractor will comply with all laws and regulations concerning work performed by persons who are not citizens of the United States as to all services and work performed for the City.

SECTION 4: The administrative officials of the City shall cause to be inserted in each contract for services or construction of public works and contract for the purchase of goods and equipment for the City a provision substantially the same as the following:

> The [Contractor] [Seller] agrees that the [Contractor] [Seller] shall be subject to an administrative penalty of up to five hundred dollars ($500.00) to be imposed by the City for any violation of the foregoing contract provisions [the provisions mandated by Section 2 and the certification required by Section 3 of this Resolution]. The [Contractor] [Seller] shall be entitled to a due process hearing before the City Administrator if requested in writing within five (5) working days of the City's notification of potential imposition of administrative penalty.

This Resolution adopted this 15th day of July, 2008.

APPROVED:

Mayor

ATTEST:

City Clerk